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Status of Claims

Pending Claims 34-55 stand rejected and are the subject of the instant appeal. Claims 37-39, 49 and 50 were indicated as being allowable. The claims pending are reproduced in the attached Appendix.

The rejections of Claims 34-36, 40-48 and 51-55 are appealed.

Status of Amendments

Claims 34-51 and Claims 54-55 were amended once in a communication filed on 6 March 2002. No other amendments have been submitted or entered.

Summary of Disclosure

The inventions are drawn generally to mobile station positioning, for example locating wireless communications devices in cellular communications networks. In one embodiment, a coarse location of a mobile wireless communications handset is determined based on base station location information and on cellular area information received from a base station transmitter. In other embodiments, the coarse location of the mobile wireless communications handset is computed based on the base station power measurement information and/or bearing information and/or the bearing angular width information with some or all of the information discussed in the embodiment above. The coarse location may be used to compute a refined

location or to reduce a GPS search space when computing GPS based location
fixes. These and other aspects features and embodiments of the inventions are
discussed more fully in the instant patent specification.

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Issues for Consideration on Appeal

Whether Claims 34-36, 40-48 and 51-55 are anticipated by US
5,724,660 (Alanara) under 35 U.S.C. 102(b).

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Grouping of Claims

Claims 34-55 do not stand or fall together regarding the rejection
under 35 USC 103.

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Discussion Of Issues

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Rejection Summary

Claims 34-36, 40-48 and 51-55 stand rejected under 35 U.S.C.
102(b) as being unpatentable over US 5,724,660 (Alanara).

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Argument for Allowability of Independent Claim 34

Regarding independent Claim 34, contrary to the Examiner's contention, Alanara fails to disclose or suggest a method in a mobile wireless communications handset comprising

... receiving base station location information of a cellular communication base station;

receiving base station cellular area information for the cellular communication base station for which the base station location information is received;

determining a coarse location of the mobile wireless communications handset based on the base station location information and on the cellular area information.

In Alanara, the base station (BS) transmits only BS location information (i.e., latitude & longitude) and/or a description of the location of the BS location (e.g., empire state building) (col. 4, line 65 - col. 5, line 9 & lines 39-41). Alanara does not transmit "base station cellular area information" as recited in Claim 34. Also, Alanara does not determine "... a coarse location of the mobile wireless communications handset based on the base station location information and on the cellular area information." Instead, Alanara stores the received BS location information for interrogation by 911 operators (col. 5, lines 62-65) or for embedding in outgoing messages (col. 7, lines 45-49). Alanara also uses the BS location information along with an independent GPS location fix for the mobile station (MS) to compute the distance between the BS and MS for time alignment determinations (col. 6, lines 18-26 & col. 7, lines 10-20). Claim 34 and the claims that depend therefrom are thus patentably distinguished over Alanara.

Argument for Allowability of Claims 35 & 42

5 Regarding dependent Claim 35, contrary to the Examiner's
contention, Alanara fails to disclose or suggest "... determining a refined
location of the mobile wireless communication handset based on the coarse
location" in combination with the limitations of Claim 34. Claim 42 recites
similar limitations in combination with Claim 40. Since Alanara does not
determine "... a coarse location of the mobile wireless communications
handset based on the base station location information and on the cellular area
information", Alanara does not and has no reason to determine a refined
location based on the coarse location. Claims 35 and 42 are thus further
10 distinguished over the art and in condition for allowance.

Argument for Allowability of Claim 36

15 Regarding dependent Claim 36, contrary to the Examiner's
contention, Alanara fails to disclose or suggest "... determining a GPS based
location of the mobile wireless communications handset, reducing a GPS
search space with the coarse location when determining the GPS based
location of the mobile wireless communications handset." As noted, Alanara
does not disclose or suggest using the BS location to compute a GPS based
20 location fix. Instead, Alanara uses an independent GPS based MS location fix
to compute the distance between the MS and BS for time alignment
determinations. Claim 36 is thus further distinguished over the art and in
condition for allowance.

25 Argument for Allowability of Claim 40

Regarding dependent Claim 40, contrary to the Examiner's contention, Alanara fails to disclose or suggest "... receiving bearing information from the cellular communication base station, determining the coarse location of the mobile wireless communications handset based on the base station location information, the base station cellular area information, and the bearing information." As noted, Alanara transmits only BS location information (i.e., latitude & longitude) and/or a description of the location of the BS location (e.g., empire state building) (col. 4, line 65 - col. 5, line 9 & lines 39-41). Claim 40 is thus further distinguished over the art and in condition for allowance.

Argument for Allowability of Claims 41 & 43

Regarding dependent Claim 41, contrary to the Examiner's contention, Alanara fails to disclose or suggest "... measuring power of a signal transmitted by the cellular communication base station, determining the coarse location of the mobile wireless communications handset based on the base station location information, the base station cellular area information, the bearing information, and the power measurement" as in Claim 41 or "... measuring power of a signal transmitted by the cellular communication base station, determining the coarse location of the mobile wireless communications handset based on the base station location information, the base station cellular area information, and the power measurement" as in Claim 34. Alanara uses RSS only to compute the distance between the MS and BS. (col. 6, lines 19-27). Alanara does not use the power measurement and/or bearing information to

determine position. Claims 41 and 43 are thus further distinguished over the art and in condition for allowance.

Argument for Allowability of Independent Claim 44

Regarding independent Claim 44, contrary to the Examiner's contention, Alanara fails to disclose or suggest a method in a mobile wireless communications handset comprising

... receiving bearing information from a plurality of at least two base stations,
determining a coarse location of the mobile wireless communications handset based on the bearing information;
determining a refined location of the mobile wireless communication handset based on the coarse location.

As noted above, Alanara does not transmit or receive "bearing information", or determine coarse location using bearing information, or determine a refined location based upon coarse location. Claim 44 is thus further patentably distinguished over Alanara.

Argument for Allowability of Claim 45

Regarding dependent Claim 45, contrary to the Examiner's contention, Alanara fails to disclose or suggest "... determining the refined location by determining a GPS based location of the mobile wireless communications handset, reducing a GPS search space when determining the GPS based location by basing the GPS location determination on the coarse

location." Alanara discloses or suggests nothing of using GPS to determine a refined location based on a coarse location determined using bearing information. Claim 45 is thus further distinguished over the art and in condition for allowance.

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Argument for Allowability of Claim 46

Regarding dependent Claim 46, contrary to the Examiner's contention, Alanara fails to disclose or suggest

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... receiving base station location information of a cellular communication base station;

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receiving base station cellular area information for the cellular communication base station for which the base station location information is received;

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determining the coarse location of the mobile wireless communications handset based on the base station location information, on the cellular area information, and the bearing information.

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As noted above, Alanara transmits only BS location information (i.e., latitude & longitude) and/or a description of the location of the BS location (e.g., empire state building). Also, Alanara does not determine "... a coarse location of the mobile wireless communications handset based on the base station location information, and the bearing information." Claim 46 is thus further patentably distinguished over Alanara.

Argument for Allowability of Independent Claim 47

Regarding independent Claim 47, contrary to the Examiner's contention, Alanara fails to disclose or suggest a method in a cellular communication system comprising a network of cellular base stations, comprising

5 ... transmitting base station location information from at least one cellular base station;

10 transmitting a cellular area of the at least one cellular base station for which the base station location information is transmitted;

 transmitting bearing information of the base station.

15 As noted, Alanara does not transmit cellular area and bearing information for a base station. Claim 47 is thus patentably distinguished over Alanara.

Argument for Allowability of Claim 48

20 Regarding dependent Claim 48, contrary to the Examiner's contention, Alanara fails to disclose or suggest "... determining a coarse location of a mobile wireless communication device in the network based upon the base station location information, the cellular area, and the bearing information of the at least one cellular base station." As noted, Alanara does not determine coarse location of an MS at the BS based upon BS location, 25 cellular area and bearing information. Claim 48 is thus further distinguished over the art and in condition for allowance.

Argument for Allowability of Claim 51

Regarding dependent Claim 51, contrary to the Examiner's contention, Alanara fails to disclose or suggest "... measuring power of a signal from the cellular base station, determining the coarse location of the mobile wireless communication device in the network based upon the base station location information, the cellular area of corresponding cellular base station, the bearing information, and the power measurement." The inadequacies of Alanara in this regard are discussed fully above. Claim 51 is thus further distinguished over the art and in condition for allowance.

Argument for Allowability of Claim 52

Regarding dependent Claim 52, contrary to the Examiner's contention, Alanara fails to disclose or suggest "... transmitting the base station location information, the cellular area, and the bearing information in a Provide Base Station Almanac Message." Alanara transmits BS location in a Digital Control Channel (DCCCH) message. There is no discussion in Alanara of GPS assistance messages. Claim 52 is thus further distinguished over the art and in condition for allowance.

Argument for Allowability of Claim 53

Regarding dependent Claim 53, contrary to the Examiner's contention, Alanara fails to disclose or suggest "... transmitting the base station location information, the cellular area, and the bearing information in a

common message" " in combination with the limitations of Claim 47. Claim 53 is thus further distinguished over the art and in condition for allowance.

Argument for Allowability of Independent Claim 54

5 Regarding independent Claim 54, contrary to the Examiner's contention, Alanara fails to disclose or suggest a method in a cellular communication device comprising

10 ... receiving base station location information for at least one base station;
 receiving a cellular area information for the base station for which the base station location information is received;
15 receiving bearing information of the base station for which the base station location information and the cellular area information are received.

20 Alanara does not transmit from the BS or receive at the MS cellular area information or bearing information. Claim 54 is thus patentably distinguished over the art and in condition for allowance.

Argument for Allowability of Claim 55

25 Regarding dependent Claim 55, contrary to the Examiner's contention, Alanara fails to disclose or suggest "... receiving the base station location information, the cellular area information, and the bearing information in a common message" in combination with the limitations of Claim 54. Claim 55 is thus further distinguished over the art and in condition for allowance.

SOUSSI

"Method of Enabling Low
Tier Location Applications"
Atty. Docket No. PF01963NA

Supp. Brief Under 37 CFR 1.192
Appl. No 09/651,382
Examiner J. Lee
Art Unit 2682

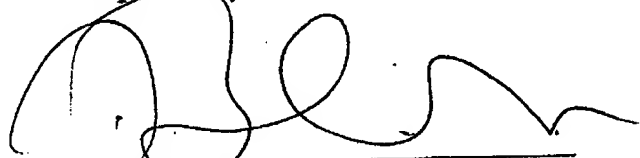
Regarding dependent Claim 55, contrary to the Examiner's contention, Alanara fails to disclose or suggest "... receiving the base station location information, the cellular area information, and the bearing information in a common message" in combination with the limitations of Claim 54. Claim 55 is thus further distinguished over the art and in condition for allowance.

Prayer For Relief

Kindly reverse and vacate the rejection of Claims under 35 USC 102, with instructions for the Examiner to allow all claims pending to issue as a United States Patent without further delay.

In view of the discussion above, the Claims of the present application are in condition for allowance. Kindly withdraw any rejections and objections and allow this application to issue as a United States Patent without further delay.

Respectfully submitted,



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APPENDIX: PENDING CLAIMS ON APPEAL

5 34. (Once Amended) A method in a mobile wireless
communications handset, comprising:

receiving base station location information of a cellular
communication base station;

10 receiving base station cellular area information for the cellular
communication base station for which the base station location information is
received;

determining a coarse location of the mobile wireless
communications handset based on the base station location information and on
the cellular area information.

15 35. (Once Amended) The method of Claim 34, determining a
refined location of the mobile wireless communication handset based on the
coarse location.

20 36. (Once Amended) The method of Claim 34, the mobile wireless
communications handset is a global positioning system (GPS) enabled mobile
wireless communications handset, determining a GPS based location of the
mobile wireless communications handset, reducing a GPS search space with
25 the coarse location when determining the GPS based location of the mobile
wireless communications handset.

5 37. (Once Amended) The method of Claim 34, receiving a bearing
and bearing angular width information for the cellular communication base
station, determining the coarse location of the mobile wireless communications
handset based on the base station location information, the base station cellular
area information, the bearing and the bearing angular width information.

10 38. (Once Amended) The method of Claim 37, measuring power of
a signal transmitted by the cellular communication base station, determining
the coarse location of the mobile wireless communications handset based on
the base station location information, the base station cellular area information,
the bearing and the bearing angular width information, and the power
15 measurement.

20 39. (Once Amended) The method of Claim 37, determining a
refined location of the mobile wireless communications handset based on the
coarse location.

25 40. (Once Amended) The method of Claim 34, receiving bearing
information from the cellular communication base station, determining the
coarse location of the mobile wireless communications handset based on the

base station location information, the base station cellular area information,
and the bearing information.

5 41. (Once Amended) The method of Claim 40, measuring power of
a signal transmitted by the cellular communication base station, determining
the coarse location of the mobile wireless communications handset based on
the base station location information, the base station cellular area information,
the bearing information, and the power measurement.

10 42. (Once Amended) The method of Claim 40, determining a
refined location of the mobile wireless communications handset based on the
coarse location.

15 43. (Once Amended) The method of Claim 34, measuring power of
a signal transmitted by the cellular communication base station, determining
the coarse location of the mobile wireless communications handset based on
20 the base station location information, the base station cellular area information,
and the power measurement.

25 44. (Once Amended) A method in a mobile wireless
communications handset, comprising:

receiving bearing information from a plurality of at least two base stations,

determining a coarse location of the mobile wireless communications handset based on the bearing information;

5 determining a refined location of the mobile wireless communication handset based on the coarse location.

10 45. (Once Amended) The method of Claim 44, the mobile wireless communications handset is a global positioning system (GPS) enabled mobile wireless communications handset, determining the refined location by determining a GPS based location of the mobile wireless communications handset, reducing a GPS search space when determining the GPS based location by basing the GPS location determination on the coarse location.

15 46. (Once Amended) The method of Claim 44,
receiving base station location information of a cellular communication base station;

20 receiving base station cellular area information for the cellular communication base station for which the base station location information is received;

25 determining the coarse location of the mobile wireless communications handset based on the base station location information, on the cellular area information, and the bearing information.

47. (Once Amended) A method in a cellular communication system comprising a network of cellular base stations, the method comprising:
transmitting base station location information from at least one
5 cellular base station;
transmitting a cellular area of the at least one cellular base station for which the base station location information is transmitted;
transmitting bearing information of the base station.

10 48. (Once Amended) The method of Claim 47, determining a coarse location of a mobile wireless communication device in the network based upon the base station location information, the cellular area, and the bearing information of the at least one cellular base station.

15 49. (Once Amended) The method of Claim 47, transmitting bearing angular width information for the cellular base station.

20 50. (Once Amended) The method of Claim 49, determining the coarse location of the mobile wireless communication device in the network based upon the base station location information, the cellular area of the corresponding cellular base station, and the bearing and the bearing angular
25 width information.

5 51. (Once Amended) The method of Claim 47, measuring power of
a signal from the cellular base station, determining the coarse location of the
mobile wireless communication device in the network based upon the base
station location information, the cellular area of corresponding cellular base
station, the bearing information, and the power measurement.

10 52. (Not Amended) The method of Claim 47, transmitting the base
station location information, the cellular area, and the bearing information in a
Provide Base Station Almanac Message.

15 53. (Not Amended) The method of Claim 47, transmitting the base
station location information, the cellular area, and the bearing information in a
common message.

20 54. (Once Amended) A method in a cellular communication
device comprising, the method comprising:
receiving base station location information for at least one base
station;
receiving a cellular area information for the base station for which
the base station location information is received;

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Art Unit 2682

receiving bearing information of the base station for which the
base station location information and the cellular area information are
received.

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55. (Once Amended) The method of Claim 54, receiving the base
station location information, the cellular area information, and the bearing
information in a common message.

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